In the Claims

Amendments to the Claims:

1. (currently amended) A die, comprising:

a substrate; and

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two or more different types of pillar structures formed over the substrate in a

pattern; at least one of the two or more different types of pillar structures includes a

lower high-melting-point non-solder supporting portion and an upper solder

material portion over and in substantial contact with only an upper surface of the

lower high-melting point non-solder supporting portion; and only a lead-free metal

portion interposed between the substrate and the at least one pillar structure

interposed between the substrate and the at least one pillar structure; wherein the

lower high-melting-point non-solder supporting portion does not melt during a

reflow process to form the two or more different types of pillar structures.

2. (previously presented) The die of claim 1, wherein at least one of the two or more

different types of pillar structures has a rectangular shape, a round shape, a ring

shape, a wall-like shape or a spline shape.

S/N: 10/682,054

3. (previously presented) The die of claim 1, wherein at least one of the two or more

different types of pillar structures has a rectangular shape with a length of from

about 789.0 to 1289.0 μ m and a width of about 289.0 μ m.

4. (previously presented) The die of claim 1, wherein at least one of the two or more

different types of pillar structures has a rectangular shape with a length of about

789.0 µm and a width of about 289.0 µm.

5. (previously presented) The die of claim 1, wherein at least one of the two or more

different types of pillar structures has a rectangular shape with a length of about

1289.0 μm and a width of about 289.0 μm.

6. (previously amended) The die of claim 1, wherein at least one of the two or more

different types of pillar structures has a rectangular shape and the two or more

different types of pillar structures are spaced apart lengthwise by about 500.0 µm

center-to-center and by about 211.0 µm end-to-end.

7. (previously amended) The die of claim 1, wherein at least one of the two or more

different types of pillar structures has a round shape with a diameter of about 289.0

μm.

S/N: 10/682,054

8. (previously amended) The die of claim 1, wherein at least one of the two or more

different types of pillar structures has a round shape with a diameter of about 289.0

μm; the two or more different types of pillar structures being arranged at least in

part in rows and columns with the adjacent round pillar structures being spaced

apart by about 500.0 μm.

9. (original) The die of claim 1, wherein the pillar structure pattern includes a series

of rows and columns.

10. (previously presented) The die of claim 1, wherein the pillar structure pattern

includes a series of rows and columns; the pillar structures arranged in the series of

rows and columns are spaced apart lengthwise by about 500.0 µm center-to-center

in the columns and are spaced apart about 211.0 μm end-to-end.

11. (previously amended) The die of claim 1, wherein at least one of the two or

more different types of pillar structures includes at least one wall-shaped pillar

structure.

12. (previously amended) The die of claim 1, wherein at least one of the two or

more different types of pillar structures includes at least one wall-shaped pillar

structure forming a square.

13. (original) The die of claim 1, including a pillar wall.
14. (canceled)
15. (canceled)
16. (currently amended) The die of claim 1, wherein the lower high-melting-point non-solder supporting portion is comprised of copper coated with oxide, chromium or nickel.
17. (canceled)
18. (canceled)
19. (previously presented) The die of claim 1, wherein the upper solder material portion is comprised of:
from about 60 to 70% tin and from about 30 to 40% lead;
about 63% tin and 37% lead;
about 99% tin and SnAg; or
100%tin.

S/N: 10/682,054

S/N: 10/682,054

20. (previously presented) The die of claim 1, wherein the solder material portion is

comprised of:

about 63% tin and 37% lead; or

100%tin.

21. (previously amended) The die of claim 1, wherein the pillar structures each have

a total height of from about 60 to 150 μm.

22. (previously amended) The die of claim 1, wherein the pillar structures each have

a total height of about 100 μm.

23. (original) The die of claim 1, wherein the die is used in Surface Acoustic Wave

devices and in MEM devices.

24. (currently amended) A die, comprising:

a substrate; and

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two or more different types of pillar structures formed over the substrate in a

pattern; the two or more different types of pillar structures having a rectangular

shape, a round shape, a ring shape, a wall-like shape or a spline shape; at least one

of the two or more different types of pillar structures includes a lower high-

S/N: 10/682,054

10

melting-point non-solder supporting portion and an upper solder material portion

over and in substantial contact with only an upper surface of the lower high-

melting point non-solder supporting portion; and only a lead-free metal portion

interposed between the substrate and the at least one pillar structure; wherein the

lower high-melting-point non-solder supporting portion does not melt during a

reflow process to form the two or more different types of pillar structures.

25. (previously amended) The die of claim 24, wherein at least one of the two or

more different types of pillar structures has a rectangular shape with a length of

from about 789.0 to 1289.0 μm and a width of about 289.0 μm .

26. (previously amended) The die of claim 24, wherein at least one of the two or

more different types of pillar structures has a rectangular shape with a length of

about 789.0 μm and a width of about 289.0 μm.

27. (previously amended) The die of claim 24, wherein at least one of the two or

more different types of pillar structures has a rectangular shape with a length of

about 1289.0 μm and a width of about 289.0 μm .

28. (previously amended) The die of claim 24, wherein at least one of the two or

more different types of pillar structures has a rectangular shape and the two or

S/N: 10/682,054

more different types of pillar structures are spaced apart lengthwise by about 500.0

μm center-to-center and by about 211.0 μm end-to-end.

29. (previously amended) The die of claim 24, wherein at least one of the two or

more different types of pillar structures has a round shape with a diameter of about

289.0 μm.

30. (previously amended) The die of claim 24, wherein at least one of the two or

more different types of pillar structures has a round shape with a diameter of about

289.0 µm; the two or more different types of pillar structures being arranged at least

in part in rows and columns with the adjacent round pillar structures being spaced

apart by about 500.0 μm.

31. (original) The die of claim 24, wherein the pillar structure pattern includes a

series of rows and columns.

32. (previously presented) The die of claim 24, wherein the pillar structure pattern

includes a series of rows and columns; the pillar structures arranged in the series of

rows and columns are spaced apart lengthwise by about 500.0 µm center-to-center

in the columns and are spaced apart about 211.0 µm end-to-end.

33. (previously amended) The die of claim 24, wherein the two or more different types of pillar structures include at least one wall-shaped pillar structure.
34. (previously amended) The die of claim 24, wherein the two or more different types of pillar structures include at least one wall-shaped pillar structure forming a square.
35. (original) The die of claim 24, including a pillar wall.
36. (canceled)
37. (canceled)
38. (currently amended) The die of claim 24, wherein the lower high-melting-point
non-solder supporting portion is comprised of copper coated with oxide, chromium
or nickel.
39. (canceled)
40. (canceled)

Docket: APS 03 - 002CCC S/N: 10/682,054

S/N: 10/682,054

41. (previously presented) The die of claim 24, wherein the upper solder material

portion is comprised of:

from about 60 to 70% tin and from about 30 to 40% lead;

about 63% tin and 37% lead;

about 99% tin and SnAg; or

100%tin.

42. (previously presented) The die of claim 24, wherein the upper solder material

portion is comprised of:

about 63% tin and 37% lead; or

100%tin.

43. (previously amended) The die of claim 24, wherein the pillar structures each

have a total height of from about 60 to 150 μ m.

44. (previously amended) The die of claim 24, wherein the pillar structures each

have a total height of about 100 μm.

45. (original) The die of claim 24, wherein the die is used in Surface Acoustic Wave

devices and in MEM devices.

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46. (currently amended) A method of forming a die, comprising the steps:

providing a substrate; and

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forming two or more different types of pillar structures over the substrate in a pattern; at least one of the two or more different types of pillar structures includes a lower high-melting-point non-solder supporting portion and an upper solder material portion over and in substantial contact with only an upper surface of the lower high-melting point non-solder supporting portion; and only a lead-free metal portion interposed between the substrate and the at least one pillar structure; wherein the lower high-melting-point non-solder supporting portion does not melt during a reflow process to form the two or more different types of pillar structures.

47. (previously amended) The method of claim 46, wherein at least one of the two or more different types of pillar structures has a rectangular shape, a round shape, a ring shape, a wall-like shape or a spline shape.

48. (previously amended) The method of claim 46, wherein at least one of the two or more different types of pillar structures has a rectangular shape with a length of from about 789.0 to 1289.0 μ m and a width of about 289.0 μ m.

S/N: 10/682,054

49. (previously amended) The method of claim 46, wherein at least one of the two or

more different types of pillar structures has a rectangular shape with a length of

about 789.0 μm and a width of about 289.0 μm.

50. (previously amended) The method of claim 46, wherein at least one of the two or

more different types of pillar structures has a rectangular shape with a length of

about 1289.0 µm and a width of about 289.0 µm.

51. (previously amended) The method of claim 46, wherein at least one of the two or

more different types of pillar structures has a rectangular shape and the two or more

different types of pillar structures are spaced apart lengthwise by about 500.0 µm

center-to-center and by about 211.0 µm end-to-end.

52. (previously amended) The method of claim 46, wherein at least one of the two or

more different types of pillar structures has a round shape with a diameter of about

289.0 μm.

53. (previously amended) The method of claim 46, wherein at least one of the two or

more different types of pillar structures has a round shape with a diameter of about

 $289.0 \ \mu m$; the two or more different types of pillar structures being arranged at least

S/N: 10/682,054

in part in rows and columns with the adjacent round pillar structures being spaced

apart by about 500.0 μm.

54. (original) The method of claim 46, wherein the pillar structure pattern includes a

series of rows and columns.

55. (previously presented) The method of claim 46, wherein the pillar structure

pattern includes a series of rows and columns; the pillar structures arranged in the

series of rows and columns are spaced apart lengthwise by about 500.0 µm center-to-

center in the columns and are spaced apart about 211.0 µm end-to-end.

56. (previously amended) The method of claim 46, wherein at least one of the two or

more different types of pillar structures includes at least one wall-shaped pillar

structure.

57. (previously amended) The method of claim 46, wherein at least one of the two or

more different types of pillar structures includes at least one wall-shaped pillar

structure forming a square.

58. (original) The method of claim 46, including a pillar wall.

S/N: 10/682,054
59. (canceled)
60. (canceled)
61. (currently amended) The method of claim 46, wherein the lower high-melting
point non-solder supporting portion is comprised of copper coated with oxide
chromium or nickel.
62. (canceled)
63. (canceled)
64. (previously presented) The method of claim 46, wherein the upper solde
material portion is comprised of:
from about 60 to 70% tin and from about 30 to 40% lead;
about 63% tin and 37% lead;
about 99% tin and SnAg; or
100%tin.
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65. (previously presented) The method of claim 46, wherein the upper solde
material portion is comprised of:
about 63% tin and 37% lead; or

S/N: 10/682,054

100%tin.

66. (previously amended) The method of claim 46, wherein the pillar structures each

have a total height of from about 60 to 150 μ m.

67. (previously amended) The method of claim 46, wherein the pillar structures each

have a total height of about 100 μm.

68. (original) The method of claim 46, wherein the die formed is used in Surface

Acoustic Wave devices and in MEM devices.

69. (currently amended) The method of claim 1, wherein the lower high-melting-

point non-solder supporting portion is comprised of copper.

70. (currently amended) The method of claim 24, wherein the lower high-melting-

point non-solder supporting portion is comprised of copper.

71. (currently amended) The method of claim 46, wherein the lower high-melting-

point non-solder supporting portion is comprised of copper.